

What Is Claimed Is:

1. A method for forming an air gap during a semiconductor metal line manufacturing process, comprising:

stacking a lower insulating layer, a lower metal line and an upper insulating layer;

patterning a first photosensitive film on the upper insulating layer;

using the patterned first photosensitive film as a mask, etching the upper insulating layer until at least a portion of the upper metal line is exposed;

filling an etched portion of the upper insulating layer with a nitride film;

patterning a second photosensitive film;

using the second photosensitive film as a mask, etching the lower metal line until the lower insulating layer is exposed;

depositing an IMD (Inter Metal Dielectric) layer;

forming an air gap within the IMD layer;

etching away the nitride film, thereby forming a hole in the IMD layer;

filling the hole with a conductive material;

depositing an upper metal line over the conductive material.

2. A method as defined in claim 1, wherein depositing the upper metal line is performed by an Al/Cu damascene process.

3. A method as defined in claim 1 further comprising removing the first photosensitive film.

4. A method as defined in claim 3 further comprising removing the upper insulating layer.

5. A method as defined in claim 4 further comprising removing the second photosensitive film.

6. A method as defined in claim 5 further comprising planarizing the IMD layer.